REMARKS

Claims 1-6, 8-14 and 16 are pending in this application. Claims 17 and 18 have been canceled without prejudice or disclaimer, and claims 1 and 9 have been amended.

The amendments to claims 1 and 9 amend the recitation of "developing portion" to overcome the rejection under 35 U.S.C. 112, second paragraph, and also incorporate the limitations of claims 17 and 18, respectively.

Claims 1-6, 8-14 and 16-18 are rejected under 35 U.S.C. 112, second paragraph, as indefinite.

The rejection is overcome by the amendment to claims 1 and 9. The first recitation of "developing portion" in the claims is amended to – developing machine –, and the second recitation is amended to – developing roller of the developing machine–.

Developing machine 10 is shown in Fig. 2, and it would be understood by one of skill in the art that the recited "revolution of the developing portion" refers to revolution of developing roller 14 in the developing machine.

Claims 1-6, 8-14 and 16 are rejected under 35 U.S.C. 102(e) as anticipated by, or in the alternative, under 35 U.S.C. 103(a) as obvious over Moriki et al. (U.S. Pat. No. 6,077,636).

The rejection is overcome by the amendments to claims 1 and 9. The amendments incorporate the limitations of claims 17 and 18, respectively, that the developing step comprises a contact type non-magnetic one-component developing method.

In Moriki et al., the toner is directed to use in a non-contact non-magnetic one-component developing process as is disclosed in column 28, lines 4 to 15, because the developing can be carried out without disorder of the image, and thus only the non-contact development is used in all the appended examples.

By contrast, in the claims as amended, the developing step comprises a contact type non-magnetic one component developing method. The amended claims are therefore distinguished from Moriki et al.

Applicants also assert that there is no suggestion for the use of a contact toner in Moriki et al. Applicants note that, as disclosed in page 4, line 9 to page 6, line 7 of the specification, the present invention is directed to solving the problems such as degradation of the toners in the contact type development, and according to the present invention, such problems could be solved by using the specific toner recited in the claims. There is no suggestion for such an approach in Moriki et al.

Applicants therefore assert that the present claims are novel and non-obvious over Moriki et al.

Claims 17 and 18 are rejected under 35 U.S.C. 102(b) as anticipated by, or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ugai et al. (U.S. Patent No. 5,698,354).

Claims 17 and 18 have been canceled without prejudice or disclaimer, as their limitations have been incorporated into claims 1 and 9, respectively, from which they had depended. Applicants therefore hereby address the present rejection as applying to claims 1 and 9.

The rejection is respectfully traversed. In the rejection, the Examiner stated that the toner

of Ugai et al. inherently has the aggregation and charging characteristics of the toner according to the present invention.

Applicants respectfully disagree.

First of all, Applicants note that the Examiner indicates that Ugai et al. does not disclose the aggregation degree or change ratio limitations of the present claims, and indicates only that some of Ugai's toners meet the external additive limitation. The Examiner asserts that Ugai's toners inherently meet the limitations of the claims. Applicants assert, however, that Ugai's toners do not inherently meet the limitations of the claims.

As recited in claims 1 and 9, the present invention is characterized by use of an external additive at 1.5 to 10.0 parts by weight in a contact-type one component developer, thereby preventing degradation of the toner.

Ugai et al. teaches use of first and second toners having shape factors of SF-1 (100 to 180) and SF-2 (100 to 140), thereby broadening the latitude of the transfer bias, along with excellent lubricity and prevention of retransfer of the toner image (column 5, line 33 to column 6, line 42).

Ugai et al. teaches use of an external additive. However, Ugai et al. teaches only that the amount is preferably 0.1 to 5 parts by weight (column 18, lines 56 to 64). Ugai's range only partially overlaps the recited range, and this does not provide a teaching of this limitation of the claims. The reference is silent concerning use of the increased amount of the external additive recited in the claims.

The object of the toner in Ugai et al. is to improve the toner fluidity. To attain this object, as is disclosed in column 18, lines 10 to 55, the external additive is preferably hydrophobic and has

a hydrophobicity of not less than 60%. Applicants also note that, since Ugai et al. discloses both contact and non-contact developing processes, the reference is not directed to solving problems associated with contact-type developing processes. This argues against inherency of the present claim limitations in Ugai et al.

In this connection, it should be noted that a level of the stress applied to a toner during development is different between contact type and non-contact type developing processes, and generally a higher level of stress is applied to the toner in the contact type developing process in comparison to the non-contact type process. For example, a mechanical stress is created by a contact of the photosensitive drum with a developing sleeve in the contact-type process, while such a stress is not created in a non-contact type process. Particularly, the mechanical stress can be increased when a white-rich image is developed, because unused toner is retained on the developing sleeve and thus the deposited toner is repeatedly contacted with the drum.

Another stress is an electrical stress represented by an intensity of electric field, and a higher intensity electric field is observed in a contact type process in comparison to a non-contact type process. This is because the gap between the photosensitive drum and the developing sleeve is about 10 to 40 μm (corresponding to the toner thickness), in the contact type process, whereas that of the non-contact type process is about 300 μm. Apparently, a highly increased electrical stress can be applied to the toner in the contact type process. For example, an intensity of electric field of 17.0 kV/cm is observed at a gap of 30 μm under application of the potential difference of 500V, but the intensity is reduced to 1.7 kV/cm at a gap of 300 μm.

Applicants therefore assert that claims 1 and 9 are novel and non-obvious over Ugai et al.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants undersigned Agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

Attached hereto is a marked-up version of the changes made by the current amendment. The attached page is captioned "**Version with markings to show changes made**."

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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Enclosures: Version with markings to show changes made

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please amend claims 1 and 9 as follows:

1. (Twice Amended) A method for the formation of a color image which comprises the steps of forming an electrostatic latent image in accordance with an electrophotographic process, visualizing said electrostatic latent image by a developer transported by a developing ~~portion~~ machine to form a multicolored toner image whereby each monochromatic color toner image is formed by a mutually independent developing step comprising a contact type non-magnetic one-component developing method, and superposing then the resulting monochromatic toner images with one another to form a multicolored toner image, and in which method a toner used in each developing step contains an external additive, the addition amount of the external additive to a non-added toner containing no external additive is within the range of 1.5 to 10.0 parts by weight on the basis of 100 parts by weight of said non-added toner, and the aggregation degree of said toner is within the range of 30 to 80%, and the change ratio of the aggregation degree satisfies the following formula:

$0.8 \leqq$ (initial aggregation degree)/(aggregation degree after 20 hours of no-load revolution of developing ~~portion~~ roller of the developing machine) $\leqq 1.2$; and

wherein said developer is a nonmagnetic one-component developer.

9. (Twice Amended) A method for the formation of a color image which comprises the steps of forming an electrostatic latent image in accordance with an electrophotographic process, visualizing said electrostatic latent image by a developer transported by a developing ~~portion~~ machine to form a multicolored toner image whereby each monochromatic color toner image is formed by a mutually independent developing step comprising a contact type non-magnetic one-component developing method, and then superposing the resulting monochromatic toner images with one another to form a multicolored toner image, and in which method a toner used in each developing step contains an external additive, the addition amount of the external additive to a non-added toner containing no external additive is within the range of 1.5 to 10.0 parts by weight on the basis of 100 parts by weight of said non-added toner, and the change ratio of the electrostatic charge amount of said toner on an image support for forming and visualizing said electrostatic latent image satisfies the following formula:

$1.0 \leqq$ (initial charge amount)/(charge amount after 20 hours of no-load revolution of developing ~~portion~~ roller of the developing machine) $\leqq 1.5$; and

wherein said developer is a nonmagnetic one-component developer.